

REMARKS:

- 1) According to the PCT procedures, the specification of this PCT National Phase application was a literal translation of the corresponding PCT International application. The specification has now been amended in an editorial and formal manner to correct a few translation and clerical errors, to clarify some translated passages, and to better adapt the text to typical US application format (e.g. with section headings). These merely editorial amendments do not introduce any new matter. Entry and consideration thereof are respectfully requested.
- 2) Also according to the PCT procedures, the original US claims were a literal translation of the PCT International claims. The claims have now been amended in an editorial manner to correct a few minor errors and to improve the idiomatic English grammar, terminology and the like. These merely editorial amendments are not submitted for reasons of patentability, do not narrow the claim scope, and do not change the intended coverage of the claims, but rather merely clarify the intended meaning of the original translated claim text. Also, the unnecessary term "means" has been avoided. Entry and consideration of the claim amendments are respectfully requested.
- 3) Referring to section 1 on page 2 of the Office Action, the objection to the drawings has been obviated by the present specification amendment. Namely, page 4 line 7 of the specification has been amended to remove the unnecessary

reference number "15". That reference number is not critical for a proper understanding or disclosure of the invention, because the referenced "terminal" of the battery supplying the voltage  $U_{\text{bat}}$  can be understood in Fig. 1 without a reference number, and because this terminal is not recited in any of the claims. Thus, reference number "15" is also not necessary in the drawings. Please withdraw the objection to the drawings.

- 4) Referring to section 2 on pages 2 to 4 of the Office Action, the specification has been amended in a formal manner to include appropriate section headings. Also, the abstract of the disclosure has been replaced with a new rewritten abstract in proper US form. Please withdraw the objection to the disclosure.
- 5) Referring to section 3 on page 4 of the Office Action, the objectionable items pointed out by the Examiner have been taken into account in the present amendment of the specification. The pertinent circuit arrangement includes two distinct capacitors, namely a system-autonomous capacitor ( $C_s$ ) and a function-autonomous capacitor ( $C_z$ ). In a preferred embodiment, in relation to a triggering circuit for triggering a vehicle safety device, the function-autonomous capacitor ( $C_z$ ) serves as an ignition-autonomous capacitor ( $C_z$ ). This terminology has now been used clearly and consistently throughout the disclosure. Please withdraw the objection.
- 6) Referring to sections 4 to 6 on pages 4 to 5 of the Office Action, the objections to claims 1, 2 and 6 to 8 have been taken

into account in the present editorial amendment of the claims. Typographical errors and grammatical ambiguities have been avoided. Also, in claim 8, it has been made clear that the function-autonomous capacitor serves as an ignition-autonomous capacitor. In view of the amendments, please withdraw the claim objections.

- 7) Referring to section 7 on page 5 of the Office Action, please withdraw the rejection of claim 6 under 35 USC §112, because amended claim 6 now omits the unintended term "means".
- 8) Referring to section 9 on pages 6 to 9 of the Office Action, the rejection of claims 1, 2 and 6 to 8 as obvious over applicant's admitted prior art (present Figure 2) in view of US Patent 6,448,784 (Belau et al.) is respectfully traversed.
- 9) Present independent claim 1 is directed to a method for operating an electronic module.

The claimed method is specifically implemented in a circuit arrangement including two distinct capacitors, namely a system-autonomous capacitor ( $C_s$ ) and a function-autonomous capacitor ( $C_z$ ). The function-autonomous capacitor ( $C_z$ ) must be connected to a voltage converter (1) and to the system-autonomous capacitor ( $C_s$ ) by a charging connection or circuit (5).

Further particularly according to the inventive method of claim 1, this charging circuit or connection (5) is controllable in two special operating states. In the first operating state a), the charging connection is controlled as a switch for

clocking the charging current that charges the function-autonomous capacitor (C<sub>z</sub>). In the second operating state b), the charging connection (5) is controlled to produce a constant discharging current for testing the system-autonomous capacitor (C<sub>s</sub>), and for producing a re-charging current for re-charging the function-autonomous capacitor (C<sub>z</sub>).

The prior art would not have suggested such a method implemented in such a circuit arrangement and involving the recited operating states of a charging connection.

- 10) The applicant's admitted prior art of present Fig. 2 is not pertinent to such features.

As acknowledged by the Examiner, admitted prior art Fig. 2 does not disclose and would not have suggested that the function-autonomous capacitor (C<sub>z</sub>) must be connected to the voltage converter (1) and to the system-autonomous capacitor (C<sub>s</sub>) by a charging connection (5 of present Fig. 1). Furthermore, the admitted prior art of Fig. 2 does not disclose and would not have suggested that such a charging connection must be controllable in two distinct operating states.

To the contrary, as described in the present specification at page 1 line 19 to page 2 line 14 (based on the actual text line count), a down-converter (2) is interposed between the two capacitors, a complex method of charging the two capacitors is necessary, and there is no capacitor testing function as there is according to the present invention.

11) With regard to such features, the Examiner has referred to the patent of Belau et al. However, the true disclosures of Belau et al., when considered in combination with applicant's admitted prior art Fig. 2, would not have suggested the present invention.

The circuit arrangement according to Belau et al. has only a single energy storage capacitor (1) (see Figs. 1 and 2). Thus, the teachings of Belau et al. regarding the circuit arrangement would not have provided any suggestion regarding how to connect a second autonomous capacitor to the first capacitor. Particularly, even when viewed in connection with the admitted prior art circuit arrangement of present Fig. 2, the teachings of Belau et al. would not have suggested that the function-autonomous capacitor (C<sub>f</sub>) must be connected to the voltage converter (1) and to the system-autonomous capacitor (C<sub>s</sub>) by a special charging connection (5), because Belau et al. teach only that a first series circuit of a discharging resistor (6) and a switch (7), and a second series circuit of a triggering element (2) and a power stage switch (3), must each respectively be connected parallel to the capacitor (1) between a charging current source (5) and ground (see Fig. 1).

Thus, even with the Examiner's analogy that the triggering element (2), the power stage switch (3) and the evaluator (4) represent a "charging connection", the only teaching is that such a "charging connection" (2, 3, 4) must be connected parallel to and across the single capacitor (1) between the charging current source and ground. When such a teaching would have been considered for the admitted prior art of present Fig. 2, the alleged "charging connection" would simply have bridged across

and parallel to the system-autonomous capacitor ( $C_s$ ) between the up-converter (1) and ground. That would not have provided or suggested the presently claimed connection between the function-autonomous capacitor ( $C_z$ ) on the one hand and both the voltage converter (1) and the system-autonomous capacitor ( $C_s$ ) on the other hand.

Furthermore, since the circuit arrangement and method of Belau et al. involve only a single capacitor, Belau et al. would not have provided any suggestion of a method comprising operating states that involve charging, discharging, testing, and re-charging with regard to two different capacitors. Belau et al. would have taught nothing about what to do with the second capacitor, because Belau et al. only disclose a single capacitor.

In view of the above, the alleged "charging connection" (2, 3, 4) according to Belau et al. does not include and would not have suggested the two method operating states recited in present claim 1. Contrary to the Examiner's assertions, the alleged charging connection (2, 3, 4) is not for measuring and controlling the energy storage of the capacitor, and the current being tested is not the "charging current being supplied to the capacitor", but rather is a charging current provided by the energy source or current source (5) (col. 2 lines 7 and 59 to 63; col. 3 lines 36 to 38 and 57 to 67; and col. 4 lines 1 to 32).

Particularly, Belau et al. disclose a method for testing the proper operability of the power stage switch (3), by flowing a test current from the current source (5) through the triggering element (2) and the power stage switch (3) (col. 4 lines 5 to 7 and 26 to 32). This test is carried out only after it has been

ensured that the energy storage capacitor (1) is in a virtually or completely discharged state (col. 2 lines 19 to 24; col. 3 lines 57 to 59; col. 4 lines 3 to 7; col. 7 lines 4 to 13; and Fig. 3 steps S2 and S3). If it is determined in step S2 that the capacitor (1) is not yet substantially discharged, then the capacitor must first be discharged through the resistor (6) and switch (7) before the test using the alleged "charging connection" (2, 3, 4) is carried out (col. 6 lines 1 to 14; col. 7, lines 5 to 13). Furthermore, the testing method is preferably carried out when the vehicle ignition is first switched on, so that the energy storage capacitor is already in a discharged state (col. 7 lines 38 to 41).

Since the testing method is only carried out after the capacitor (1) is in a discharged state, it is clear that the test current does not come from the capacitor, but rather from the energy (current) source (5). For this reason, it is further clear that the method according to Belau et al. does not carry out, and would not have been suitable or suggested for, testing the capacitor in the sense of present claim 1, because the capacitor (1) is substantially or completely discharged through the discharging elements (6, 7) before carrying out the test through the elements (2, 3, 4). After the capacitor has been discharged through the discharging elements (6, 7), it cannot thereafter be tested by the testing elements (2, 3, 4). On the other hand, the discharging elements (6, 7) of Belau et al. have no function or operation of testing the capacitor (1), which they simply discharge. Also, since there is no second capacitor provided or suggested by Belau et al., there also would have been

no suggestion to provide such discharging of the single capacitor as a charging current for a further capacitor, because there is no further capacitor.

The Examiner has acknowledged that "the Belau charging connection does not specifically charge the function-autonomous capacitor". Nonetheless, the Examiner has asserted "it would be obvious to a person skilled in the art that the current discharged by the system-autonomous capacitor can be used to trigger an electrical element or routed to an energy storage device, such as the function-autonomous capacitor" (emphasis added) (bottom of page 7 of the Office Action). Such an assertion is completely unsupported by any prior art teachings, but rather seems to be based only on the Examiner's hindsight reasoning and reconstruction of the present invention based on knowledge of the present invention. The fact that a discharged current "can be used" in a certain manner or for further functions (as asserted by the Examiner), even if true, does not substitute for a prior art teaching or suggestion that the discharged current should actually be used in the asserted manner.

To the contrary, the admitted prior art does not include and would not have suggested any sort of charging connection in the presently claimed context, and the alleged charging connection of Belau et al. would not have suggested the functions and operating states as presently claimed. Especially because Belau et al. do not have any second capacitor whatsoever, and instead merely discharge the capacitor (1) through a resistor (6) to ground, the Examiner's proposed motivation for a further

modification is actually contrary to the true teachings of the prior art.

12) Thus, in view of the above discussion, the following concrete distinctions exist between the combined prior art and the present inventive method of claim 1.

The references do not disclose and would not have suggested a charging connection that connects a function-autonomous capacitor to a voltage converter and to a system-autonomous capacitor.

The references do not disclose and would not have suggested such a charging connection with an operating state as a switch for clocking the charging current that charges the function-autonomous capacitor. To do so, the charging connection must have the charging current for the function-autonomous capacitor flow through it, but the references would not have suggested that. The admitted prior art does not have such a charging connection, and the alleged charging connection of Belau et al. does not have a charging current for a capacitor flow through it, but rather merely has a test current from the current source (5) flow through it. Any charging of the capacitor (1) takes place simply directly from the current source (5). Discharging of the capacitor (1) takes place through the resistor (6) and switch (7).

The references do not disclose and would not have suggested such a charging connection with an operating state as a controllable resistance for producing a constant discharging current for testing the system-autonomous capacitor. To the

contrary, the admitted prior art has no such charging connection or operating state, and the alleged charging connection (2, 3, 4) of Belau et al. does not serve as a controllable resistance through which a constant discharging current flows from the capacitor (1) for testing the capacitor. Instead, the capacitor (1) is first separately discharged through the resistor (6, 7), and the alleged charging connection (2, 3, 4) does not and cannot test the capacitor (1) in this manner.

The references further do not provide and would not have suggested such a charging connection with an operating state to operate so as to produce a re-charging current for re-charging a further function-autonomous capacitor, because the admitted prior art includes no such features, and Belau et al. includes no second capacitor that could be charged through the alleged charging connection (2, 3, 4), which is instead merely connected to ground in parallel to the single capacitor (1).

- 13) The dependent claims recite additional features that further distinguish the invention over the prior art, for example as follows. According to claim 2, testing the system-autonomous capacitor specifically involves discharging current from the system-autonomous capacitor into the function-autonomous capacitor. There is no prior art suggestion in this regard, because Belau et al. only use a single capacitor. Even with the Examiner's further assertions in this regard, there still would have been no suggestion toward such a discharging of current from a first capacitor into a second capacitor while testing the first capacitor. Belau et al. test the operability of the triggering

element (2) and the power stage (3) by flowing current from the current source (5), after the current from the capacitor (1) has been discharged through the resistor (6) to ground.

- 14) For the above reasons, the present invention as claimed in the respective claims would not have been obvious over applicant's admitted prior art in view of Belau et al., and the Examiner is respectfully requested to withdraw the rejection of claims 1, 2 and 6 to 8.
- 15) The additional prior art made of record requires no particular comments, because it has not been applied against the claims.
- 16) Favorable reconsideration and allowance of the application, including all present claims 1, 2 and 6 to 8, are respectfully requested.

Respectfully submitted,  
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